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Another object of the present invention is to provide a method for detecting target chemicals which includes training an invertebrate organism to display a typical behavior in response to the smell of a target chemical, placing at least one trained organism in at least one detection chamber compartment containing a divider with an opening containing a sensor, attaching this to an air system, pumping air from the suspected area through the detection chamber and recording the organisms behavior, and exhausting the test air.

Further objects and advantages of the invention will become apparent from the following description.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a schematic drawing of a portable chemical detection device.

Figure 2 is a graph showing % flight response of experienced and inexperienced female *Microplitis croceipes* to Trans-caryophyllene at about 1, 20, 100 and 300 ng/minute release rate. N=about 145 experienced and about 147 inexperienced females.